

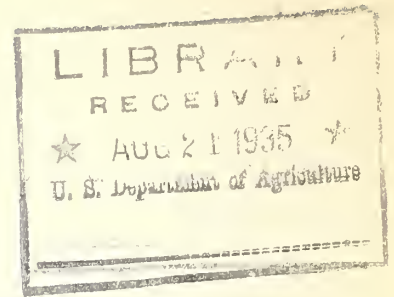
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CALIFORNIA EROSION DIGEST

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Soil Erosion Service

Harry E. Reddick, Regional Director

U. S. Department of the Interior

Santa Paula, California

EDITORIAL

This, the first issue of our publication, which we hope will be a monthly visitor to you, is our attempt to keep you informed regarding the progress of soil erosion prevention and control work which is under way in the Las Posas and Arroyo Grande areas, and, in fact, throughout the State. Soil erosion control has developed into quite an undertaking, with 26 projects under way over the nation, many of them larger in area than our own, with other projects planned. You may have noticed articles in some of the national magazines in the past few weeks on the country wide menace of soil erosion. It is estimated, according to Director H. H. Bennett, of the Soil Erosion Service, that fully 35 million acres of land formerly in crops, much of it some of the best land in the country, valued at \$1,750,000,000, has been ruined by preventable erosion, and that this loss is continuing at the rate of 400 million dollars in value of property destroyed each year. The projects which are under way in Las Posas Valley and Arroyo Grande are part of the nation wide demonstration of how this loss may be stopped or at least greatly reduced.

We hope each one of you will take a personal interest in the soil erosion work you are doing, or that is being done in the Area. We hope, also, that you will come to us with any of your problems in land utilization, which may have any bearing on soil erosion control.

Harry E. Reddick,
Regional Director.

ORGANIZATION CHART SOIL EROSION SERVICE CALIFORNIA PROJECT

REGIONAL DIRECTOR
Harry E. Reddick

Chief Clerk	Soil Expert	Chief Agronomist	Chief Engineer	Extension Agent	E.C.W. Camps Gen. Supt.
Jack I. Barash	Eugene J. Carpenter	A. E. McClmonds	J. G. Barnesberger	W. B. Hooper	A. E. Burns

EROSION SURVEY OF STATE

EARLY IN August the soils department of the California Soil Erosion Control Project was instructed to prepare for a reconnaissance erosion survey of the State. This survey is a part of a survey of the entire United States.

ABOUT THE middle of this same month Mr. Wohletz and Mr. Tikkaner drove to the southern part of the State to begin the work. A week later Dr. Carter and Mr. Shoosmith started work in the San Joaquin Valley, and I have just recently completed most of the Mojave Desert region. At the present time about 80% of the State has been covered and it is hoped to have the whole State surveyed by the middle of October.

THE PURPOSE of the survey is to get a true picture of erosion conditions throughout the United States, to present to the people the seriousness of this threat to the agricultural stability of the Nation, and particularly to point out the amount of destruction of agricultural lands due to erosion occurring at the present time.

THOUGH it is not generally recognized that erosion is a serious problem in California, yet the erosion survey has already discovered several large areas in which erosion has almost completely destroyed the land for cultivation. Numerous other areas, particularly in Ventura, San Diego, and Orange counties, are so seriously eroded that the lands have lost much of their agricultural value. Even some of the grazing lands in the upper southwestern part of the San Joaquin Valley are so seriously eroded as to have lost most of their value for even grazing purposes. Similar areas of grazing land along the east central part of the Salinas Valley are threatened with a similar fate if steps are not taken very soon to protect the land.

FROM THE data collected by the erosion survey it is expected that plans can be formulated for the early protection of the lands that are most seriously threatened by erosion.

FROM THE soil, crop, slope and erosion data collected by this survey it is also expected that some information can be had on the soils most susceptible to erosion, and on the type of cover that is most effective in preventing soil washing.

-E.J. Carpenter.

CONTOUR CULTIVATION

ONE OF THE simplest and least expensive preventatives of erosion is contour cultivation. No matter what is done to prevent erosion, whether it be strip cropping or terracing, tillage must be made a part of the scheme. When contour cultivation is used as the only means of erosion prevention it should be confined to land with slopes of less than 20 feet per hundred. Sloping land, which is subject to erosion, should never be cultivated with the slope, but always across it, in order to reduce run-off, and thereby lessen the washing away of the soil. This method of cultivation is also valuable for increasing the moisture content by holding the rain where it falls.

TRANSPORTATION

TRANSPORTATION of men and materials is an important factor in the work of the Soil Erosion Service. The California Project has a variety of cars, and trucks - Ford pickups, Chevrolet station wagons, Chevrolet coupe pickups, Chevrolet $1\frac{1}{2}$ -ton trucks, and International dump trucks; each of which has its special use.

THE GARAGE personnel consists of a garage foreman, one certified Chevrolet mechanic, and two mechanic's helpers. The garage foreman works through the day with one mechanic's helper, and the mechanic works the night shift, with the other mechanic's helper. Cars and trucks are washed once a week, serviced every thousand miles, and waxed and polished once every three months. Fortunately, the garage foreman was hired with his equipment, which furnishes us with a comparatively complete garage service.

SINCE THE majority of these cars did not arrive until the end of July, no serious breakdowns have occurred. Two very minor accidents necessitated the replacement of fenders and a rear-view mirror. Some of these cars now have about five thousand miles on them, and we anticipate grinding the valves and giving them a complete tuning up within the next two or three thousand miles.

AT THE PRESENT time three station wagons are away from the Area, two on a State soils survey and one with a survey crew. Our Soils Expert has one of the Chevrolet coupe pickups in use on the State survey, also. If it is ever possible to get all the cars into the garage at one time, we intend to take a picture of them for our files.

TWO OF THE $1\frac{1}{2}$ -ton trucks are equipped with water tanks, which are easily detached, since there are "A" frames on the Area which the trucks can drive between and readily be unloaded. All of the trucks are equipped with trailer hitches, courtesy lights, and overload springs, in order that we might get the greatest efficiency possible at the least up-keep cost. We have informed our drivers as to the importance of the adherence to all State and local traffic rules and regulations, the necessity for them to show themselves gentlemen at all times, to show the same courtesy of the road

that they would want extended to them in order that they might build an enviable reputation for the Soil Erosion Service. So far we have had no complaints from State or local authorities on the driving of the car or the action of our drivers.

ONE IMPORTANT factor in regard to our trucks is the fact that all truck drivers which we hired were truck drivers. Our garage foreman, having been in the game for years handling truck drivers, was able to toll by riding with them just what their qualifications were.

NO MAN is allowed to drive a truck who is not, in the opinion of our shop foreman, a good truck driver. This also holds true in regard to our tractor and grader operators, and in that way we hope to maintain a low up-keep cost and have the trucks in good condition regardless of the number of miles at the end of the year.
-Hallet Craig.

STRIP CROPPING

DEFINITION: "Strip cropping consists of planting strips of densely growing fibrous rooted crops between strips or rows of clean tilled crops planted on slopes, which will not absorb all of the water which falls upon them. In California winter growing strip crops are also used protecting clean cultivated slopes, which will be planted to beans.

THIS VERY effective means of controlling erosion can be practiced on any degree of slope which is capable of being cultivated. It is essential to have the strips laid out as nearly as practical on contour lines similar to contour cultivation.

THERE ARE A few things connected with soil erosion which may

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be accepted as established facts. One of these is the longer the slope, other things being equal, the greater the degree of erosion. The chief object of strip cropping is to check the momentum of the runoff, filter out the soil being carried off by the water, and increase the absorption of rain water by the soil. This is accomplished by alternating strips of some non-erosive crop, as for instance, bur clover or oats, with clean cultivated crops, such as beans. The chief difficulty in the Las Posas area is that the strip crop should be permanent. The climate here is too dry to plant corn, wheat, oats, clover and pasture grass, the crops which are alternated in the north-central states where there is a great amount of rain. While a permanent strip crop is the best plan it is often difficult to convince the farmer that giving up part of the slope for strip crops will mean greater returns eventually.

ADVANTAGES OF STRIP CROPPING.

1. It can be put into practice by a farmer without any great initial cost.
2. Boundary lines of the strips, while it is best that they follow the contours of the slopes, do not demand the same engineering exactness necessary in terracing.
3. In some cases it is more economical, since long, narrow fields require somewhat less labor to farm than do square ones of the same area.
4. No obstructions to interfere with use of machinery.
5. Strip cropping can be used with and is an excellent supplement to terracing.
6. Reduces erosion in six ways:
 - (1) Provides closer ground cover.
 - (2) The greater number of roots aid in holding the soil.
 - (3) Reduces the culti-

vated area of the field.

(4) Acts as an absorbent for rainfall.

(5) Spreads water which may collect in rivulets in cultivated areas.

(6) Filters out the soil which is being carried by the water.

DISADVANTAGES:

1. Field is not solidly planted to one crop.
2. Difficulty in finding suitable crop.
3. Strip cropping alone will not entirely control erosion, especially on the steeper slopes (although it is an aid under all conditions.)

SOIL AND SLOPE

THE CHARACTER of soil and steepness of slope must be considered. Obviously the more erosive the soil the narrower should be the interval between strips. The same is true for steepness of slope.

-A. E. McClymonds

Ralph Harris, job foreman, and his crew recently completed terracing and planting of ice plant on job #10. From all indications the plants will do well, and together with the check dam at the same location, should help in controlling soil erosion.

Wohletz and Tikkaner spent a few days in the office after their survey of the southern part of the State. Thence north. Wohletz says he saw some very fine contours at Balboa Beach. "Tik" agreed. "Tik" hails from Wyoming, which, incidentally, is on the Lincoln Highway.

WILD LIFE MANAGEMENT AND SOIL EROSION CONTROL

by Paul B. Dickey

THE EARLY part of this year President Roosevelt appointed J. N. "Ding" Darling, the cartoonist, Thomas H. Beck, publisher of Collier's Weekly, and Aldo Leopold, professor at the University of Wisconsin, as a committee on Wild Life Restoration.

THIS COMMITTEE drew up a comprehensive and concrete program. The program as outlined by Mr. Beck includes these features.

1. Restoration of migratory water fowl nesting areas (natural areas which have suffered from drought, drainage, or encroachment of agriculture.)

2. A nation wide upland game restoration program with specific projects proposed.

3. A nation wide plan for acquisition and restoration of areas suitable for facilitating an increased population of all wild life, especially those species which are becoming scarce.

4. A proposal for a much needed, coordinated, businesslike administrative organization to carry the plan into successful execution.

THE LAND for these purposes is to be acquired by purchase (lease for one year, with the option to buy, to hasten possession and guard against error.) The cost of acquisition, restoration (dams, dikes, ditches, etc.) and management will be included.

THIS PROGRAM ties in well with the plan of the Government to buy some 50 million acres of marginal land and retire it from cultivation. The Federal Surplus Relief Corporation has already been entrusted with the money and the power to buy the land. C.W.A. labor is available for the project. In fact, the plan is an integral part of the whole effort that is being made by the Federal Government toward planned

economy and social betterment for the entire nation.

WILD GAME management on the farm is a comparatively new agricultural enterprise. Only a year or so ago, in rather large areas of Iowa, Wisconsin, and other midwest states, farmers began cooperating in providing food and cover for game birds. Attention was given to establishing hunting grounds for the average man who enjoys the sport, but cannot afford membership in game clubs. This plan has proven profitable in these states.

IT IS THE writer's belief that this type of game management can easily be incorporated with the SOIL EROSION SERVICE demonstration work. There are several parts of the S.E.S. plan that can be nicely fitted into a planned game management program.

1. In orchards on slopes plants suitable for food for birds could, with encouragement, replace the woods of the risers.

2. The practice of strip cropping increases the chances for food and cover for game birds.

3. Sod or other plantings at the end of terraces where drainage is necessary can be made to provide food, shelter and nesting sites.

4. Dams built provide a water supply for a longer time than formerly and provision for more watering places can readily be made.

5. The planting plan in general provides a cover which will prevent rapid erosion of top soil. This cover will greatly improve the bird's environment.

THERE ARE many plants which produce abundant food for birds and which also grow in a semi-arid climate.

such as the Las Posas. A few of them are listed below. The number following a plant name indicates the number of different kinds of birds which eat the seed or parts of the plant.

Elderberry (106)	Blackberry
Honeysuckle	Juniper
Manzanita	Oak
Pepper tree (11)	Poppies
Goldenrod	Sunflower
Milletts	Wheat
Oats	Ragweed
Smartweed	Vetch
Virginia Creeper	Wild cherry
Wild plum	Wild peach
Wild apricot	Alfalfa
Alder	Ash
Boxelder	Clover
Holly	Huckleberry
Juncberry	Mulberry
Osage orange	Partridge pea
Soy bean	Snowberry
Sumac (lemonade bush)	Tarwoods
Barnyard grass	Sudan grass
Australian salt bush	

BRIEFLY, wild life management is favoring desired groups of wild creatures at the expense of the undesired. It is essentially different from protection and preservation. Game management is a branch of agriculture by which a definite yearly crop can be harvested. Preservation in sanctuaries seeks to hold what remains of the different species - but goes no farther. Analogous to preservation as contrasted to management would be the case of a farmer storing his bean seed, taking precaution against loss by insects or rodents, but not using it to produce more.

THE FUNDAMENTAL principle of game management is creation and maintenance of a satisfactory environment. It has been proven that the most effective, and economical, way of increasing wild-life populations is by improving the environment. Sanctuaries are areas where the environment has for a long time been ideal, and hence a safe and

favorite breeding place. On the farm, however, great benefit can be derived from managing and increasing the wild-life population. The farmer is generally interested, and he is the one who determines whether or not the benefits of the crop will be available (to himself and to others.) If at the same time the farmer can produce a crop on his marginal land that aids him in the control of insect pests, scarcely interferes with his grazing enterprise and pays the taxes on that land, he will be willing to modify his ordinary farming operations so as not to hinder the maximum production of such a crop.

ASSISTING the farmer in the production of a game crop is a reproductive force almost explosive in its intensity. For instance, with no mortality and an equal division of sexes, a pair of quail producing 14 chicks each year would increase their number at an astonishing rate.

16	the first year
128	the second year
1024	the third year
8192	the fourth year
65536	the fifth year

It must be evident then that tremendous forces are working against the natural increase of game where it is scarce.
(to be continued in October issue.)

"The Soil Erosion Service in cooperation with the West Virginia University Experiment Station are conducting a social and economic survey of every farm in the area. Farm costs records will be obtained and studies made looking toward the organization of farm enterprises along more profitable lines."

-S.E.S. Project 13
Spencer, West Virginia

COOPERATIVE AGREEMENTS

THE COOPERATIVE agreement is the basis of the demonstrational work on soil erosion control in the particular area devoted to soil erosion control projects. It is a five year agreement entered into between the owner or operator of the particular property on which erosion control recommendations have been made by authorized representatives of the Government, and the United States of America. The agreement provides that the farmer is to maintain and protect, for a period of five years, all terraces, terrace outlets, dams, and other erosion control structures built by the Government on his property, allowance being made for wear and tear over which the farmer has no control.

THERE ARE twenty articles or clauses in this agreement. The important articles are those which define the particular erosion control work to be done upon the property and the portion of it which the cooperator agrees to do or assist in doing, and the portion which the Government agrees to complete. The cooperator agrees to furnish available equipment, such as tractor or team for pulling terracing tools or other equipment, needed in the work, and any materials which may be available on the property, and haul these materials to the point at which they are used. The Government provides whatever material and equipment is not available to the cooperator and all engineering work involved in the building of soil erosion control structures.

SEED IS also furnished for planting such areas as are taken out of cultivation for pasture land with insufficient cover to provide satisfactory protection to the soil; for strip cropping areas on steep slopes to form bench terraces; and in fact for all areas to be planted, except orchards,

for which cover crops are recommended. The Government also provides trees and cuttings of native shrubs for planting along water courses, gullies and barranca banks, to stabilize and protect them from side cutting and meandering.

THE RECOMMENDATIONS which are made for erosion control on any particular piece of property are determined by a consultation between the operator of the property and the members of the Soil Erosion Service staff. If the solution of these questions of the Soil Erosion control problems do not prove satisfactory after trial, amendments to the five-year agreement may be made, which will provide adequate erosion control for the property.

AN AERIAL map accompanies the agreement on which is indicated, by means of symbols, the methods by which erosion control will be accomplished. The object of the agreement is to arrive at a definite erosion control program for the property which is clearly understood by the representatives of the Soil Erosion Service and the cooperators.

-W.B.Hooper.

"Five range examiners engaged in making a grazing survey of the Navajo Project will each have a trainee Monday morning. Mr. Boko has supplied these Indian boys from five different jurisdictions to learn range management technique. Each range examiner for the Soil Erosion Service will have an Indian boy in company with him for the rest of the field season."

-Navajo Project.

Check dams stop gullies from taking your land.

DAT MEAN OL' DEBIL "SOIL EROSION".

A Highly Moral Pomo.

I am a Farm and my years are many,
Eighty some years come December.
My Top-soil is gone and my Sub-soil is gullied,
My owner cusses me all the day long
Says I never was worth a Continental,
I oter be buried in Ol' Mississippi.
O if I only could talk:
Eighty years ago I was cleared of my cover
My soil was rich with humus
My owner bragged of my virtues
Said I was the pride of forty counties,
Never needing much attention.
To use a modern phrase -
I could take it.
Came the Civil War, my owner left, never to return.
His wife sold me to a man who was so tarnation lazy
He jost sat around all day and spit tobaccor juice.
Sheriff's Sale. 160 acre farm. Auction today.
A fine young fellow bid me in
Farmed me for twenty some odd years.
The first ten years were years of plenty.
Then came the lean years
The crops he grow and the way he grow them
Robbed me of my fertility.
He cleared my steeper slopes of trees and brush,
That never previously had been touched.
Ruins washed me down to Muddy Crick
Which connects up with Ol' Mississipp.
Gullies got bigger an' bigger -
I was a Has-Been and was sold
To a man who said I was acid,
Vowed up an' down I needed Lime
(But my topsoil was gone)
To sweeten me up a bit.
I did my best but he gave up
And I was sold so many time thereafter
It ceases to be a subject for laughter.
So this be my plea to all good men,
The Surface Soil is a gift of Nature,
Don't throw it in Ol' Mississipp,
(Or the Atlantic or Pacific Oceans)
Contour and terrace me
And I'll be true.
And always remember
A check dam in time
Saves many a dime.

-Walter A. Lloyd.

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